

### Silicon PNP Thyristor

#### FEATURES

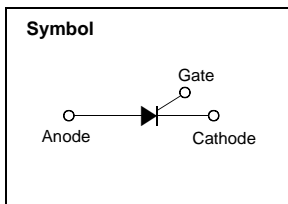
- Repetitive Peak Off-State Voltage: 400V
- R.M.S On-State Current ( $I_{T(RMS)} = 0.8A$ )
- Low Gate Trigger Current: 200uA

#### General Description

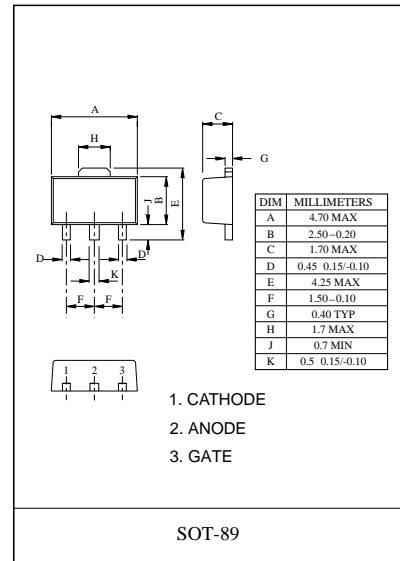
SCR product is a single directional PNP device, has a low gate trigger current and high stability in gate trigger current to temperature, generally suitable for sensing and detection circuits.

#### Applications

Leakage detector, Electronic Ballast or protection circuit.



$V_{DRM} = 400\text{ V}$
$I_{T(RMS)} = 0.8\text{ A}$
$I_{TSM} = 11\text{ A}$
$I_{GT} = 200\mu\text{A}$



#### Absolute Maximum Ratings ( $T_J=25^\circ\text{C}$ unless otherwise specified )

Symbol	Parameter	Conditions	Ratings	Unit
$V_{DRM}$	Repetitive Peak Off-State Voltage	Sine wave, 50/60Hz, Gate open	400	V
$V_{RRM}$	Repetitive Peak Reverse Voltage		400	V
$I_{T(AV)}$	Average On-State Current	Full sine wave, $T_C = 95.1^\circ\text{C}$	0.5	A
$I_{T(RMS)}$	R.M.S. On-State Current		0.8	A
$I_{TSM}$	Surge On-State Current	½ cycle, 50Hz/60Hz, Sine wave, Non repetitive	10/11	A
$I^2t$	Fusing Current	$t = 10\text{ms}$	0.5	A <sup>2</sup> S
$P_{GM}$	Forward Peak Gate Power Dissipation	$T_J = 125^\circ\text{C}$ , pulse width $\leq 1.0\mu\text{s}$	2	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	$T_J = 125^\circ\text{C}$ , $t = 8.3\text{ms}$	0.1	W
$I_{FGM}$	Forward Peak Gate Current	$T_J = 125^\circ\text{C}$ , pulse width $\leq 1.0\mu\text{s}$	1	A
$V_{RGM}$	Reverse Peak Gate Voltage	$T_J = 125^\circ\text{C}$ , pulse width $\leq 1.0\mu\text{s}$	5	V
$T_J$	Operating Junction Temperature		-40~+125	$^\circ\text{C}$
$T_{STG}$	Storage Temperature		-40~+150	$^\circ\text{C}$



## Electrical Characteristics (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
I <sub>DRM</sub>	Repetitive Peak Off-State Current	V <sub>D</sub> = V <sub>DRM</sub>	T <sub>C</sub> =25°C	-	-	50	uA
			T <sub>C</sub> =125°C	-	-	5	mA
I <sub>RRM</sub>	Repetitive Peak Reverse Current	V <sub>D</sub> = V <sub>DRM</sub>	T <sub>C</sub> =25°C	-	-	50	uA
			T <sub>C</sub> =125°C	-	-	5	mA
I <sub>GT</sub>	Gate Trigger Current	V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω	-	-	200	uA	
V <sub>GT</sub>	Gate Trigger Voltage	V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω	-	-	1.0	V	
V <sub>GD</sub>	Non-Trigger Gate Voltage <sup>1</sup>	V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω, T <sub>J</sub> =125°C	0.2	-	-	V	
V <sub>TM</sub>	Peak On-State Voltage	I <sub>T</sub> = 1.1A, I <sub>G</sub> = 5mA	-	1.2	1.7	V	
dv/dt	Critical Rate of Rise of Off-State Voltage	V <sub>D</sub> = 2/3 V <sub>DRM</sub> , T <sub>J</sub> =125°C	10	-	-	V/us	
I <sub>H</sub>	Holding current	I <sub>T</sub> = 0.2A	-	-	1	mA	

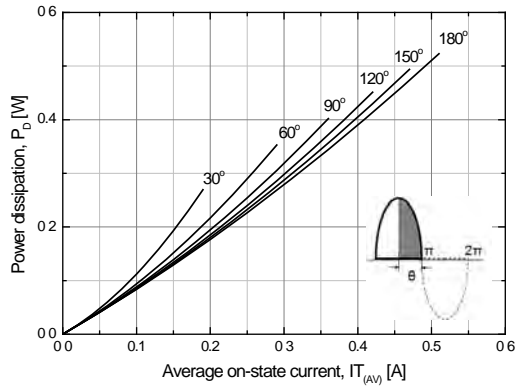
### Notes :

1. Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%

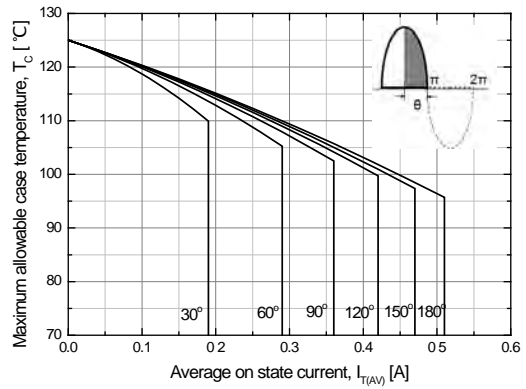
## Thermal Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
R <sub>θJC</sub>	Thermal Resistance	Junction to Case			56	°C/W
R <sub>θJA</sub>	Thermal Resistance	Junction to Ambient			150	°C/W

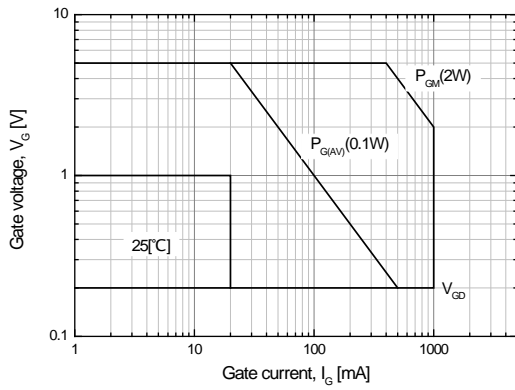
## Typical Characteristics



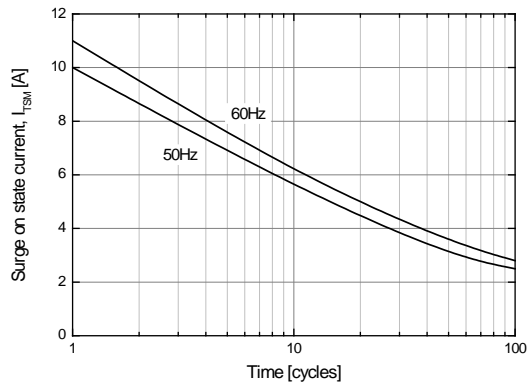
**Fig 1. Average Current vs. Power dissipation**



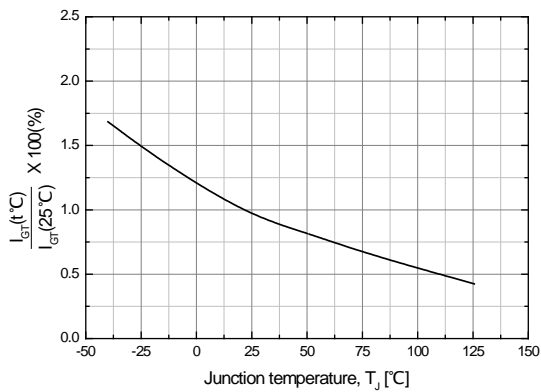
**Fig 2. Average current vs. Case Temperature**



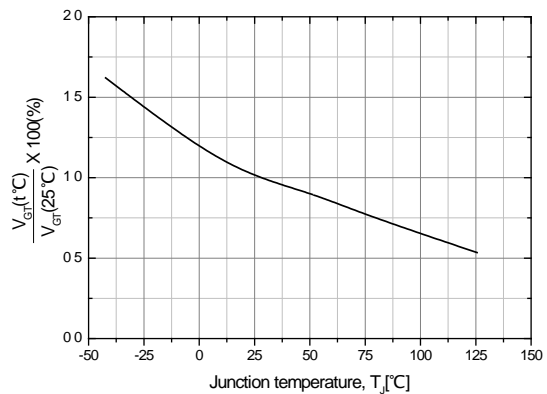
**Fig 3. Gate power characteristics**



**Fig 4. Surge on state current rating (Non-repetitive)**

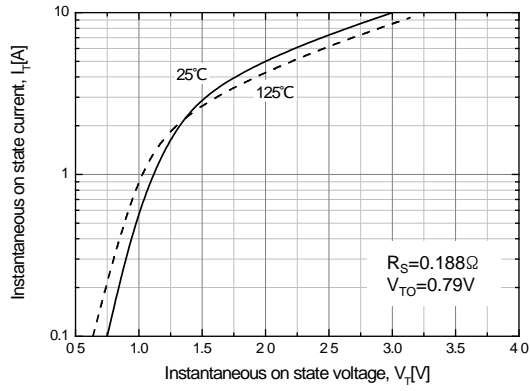


**Fig 5. Gate trigger current vs. junction temperature**

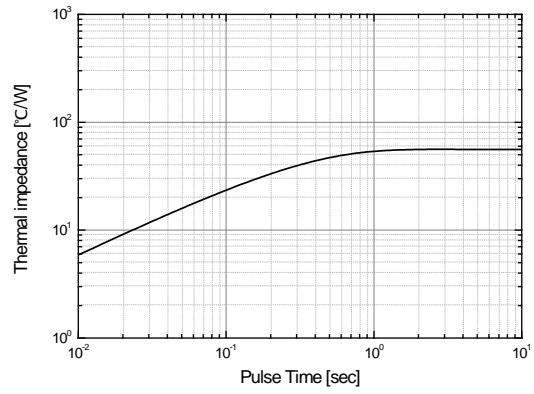


**Fig 6. Gate trigger voltage vs. junction temperature**

## Typical Characteristics

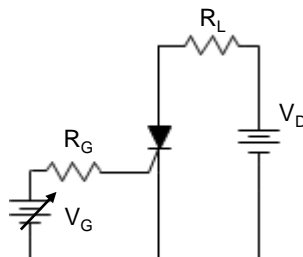


**Fig 7. Instantaneous on state current vs. Instantaneous on state voltage**



**Fig 8. Thermal Impedance vs. pulse time**

### Measurement of gate trigger current



Note. Whole parameter and test condition can not be over absolute maximum ratings in this datasheet.